

# ATOMIC ENERGY

THE FIRST AND ONLY

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Dear Sir:

The strike last week at the Paducah, Ky., and Oak Ridge, Tenn. plants producing uranium-235 by the gaseous diffusion process came to a halt at the week's end. The dispute, which had provoked the strike, was over a wage increase requested by both the C.I.O. and A.F.L. unions represented at the plants. The request had been made some three months ago during negotiations for a new wage contract at the plants. (Since Union Carbide and Carbon Corporation runs the plants under a prime USAEC contract, the negotiations were with Carbide.) Last month, the Atomic Energy Labor Panel, a presidential agency with advisory powers, intervened with a wage rise acceptable to Carbide but not to the unions. When the strike erupted last week, preparations were made to end it by an injunction in the Federal courts. Now, the ending of the strike (by union vote) makes the injunction unnecessary.

The business and personnel of Patterson, Moos & Co., Jamaica, N.Y., have now been acquired by the Universal Winding Co., Providence, R.I. The activities of Patterson, Moos, which now becomes a division of Universal Winding, have been in the fields of nuclear physics, and electronics and ordnance engineering. For the past six years they have been doing basic research and development along these lines, and their back-log of contract and development work will be continued under Universal's management. Dr. Anthony M. Moos will continue to head the Patterson, Moos division, and Mr. David F. Doody, his associate, will also continue with the firm. (Other BUSINESS news, page 2 this LETTER.)

Eight members of the new Atomic Energy Authority, which will now control the United Kingdom's atomic energy program, have now been named in London by the Government. Chairman will be Sir Edwin Plowden, economist. Sir John Cockcroft will be in charge of scientific research; Sir Christopher Hinton, engineering and production; Sir William Penney, weapons research and development; and Sir Donald Perrott, finance and administration. These will be full time positions. In addition, the other members of the authority who will serve part time will be Lord Cherwell, Sir Luke Fawcett, and I.A.R. Stedeford. (Other news of British Nuclear Work, page 2 this LETTER.)

A uranium ore-buying station will be opened by the USAEC in the White Canyon area of southeastern Utah some time in August to encourage the production of uranium-bearing ores in that section. The site of the projected ore receiving and sampling plant is in White Canyon, about 15 miles east of Hite, Utah. Construction of this buying station started in early June; it will be operated under a USAEC contract by the American Smelting and Refining Co. (Other RAW MATERIAL news, page 4 this LETTER.)

A nuclear reactor which will be used for research into nuclear power is now to be built at Massachusetts Institute of Technology. The cost, which will be borne wholly by private means, will approximate \$1 million, including the special laboratory which will be erected to house it.

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### NUCLEAR WORK OUTSIDE THE UNITED STATES...

Great Britain:-Work is now going forward on the new nuclear reactor at Harwell, which will be the fourth atomic pile to be built there and the first in Great Britain to use heavy water as a moderator. The two research reactors at Harwell, BEPO and GLEEP, have been used for a wide range of work, particularly for studies in connection with the design of the plutonium-producing piles now in operation at Windscale, and the newer power station now under construction at Calder Hall. This new research reactor, which will operate at a very high neutron intensity, will permit other experimental studies to be carried out, and will also make possible the production of certain radioactive isotopes such as cobalt-60. As fuel, the reactor will use highly enriched uranium from the Capenhurst gaseous diffusion production plant. The general design of the plant is the work of the Atomic Energy Research Establishment, Harwell. Head Wrightson Processes, Ltd., are responsible for detailed design and provision of reactor components.

Details have now been released of an order, valued at over \$1,400,000, which has been placed by the Ministry of Supply with the General Electric Co., Ltd., for equipment to be used at the Dryway nuclear materials plant at Springfields, near Preston. The equipment will be used in the production of uranium metal, and comprises 54 vertical cylindrical furnaces, each rated at 100 kw., and 200 furnace pots. The furnaces, which have been supplied complete with control and unloading gear, and cranes, have a heated depth of 6½-feet, and a maximum temperature of 750 deg. C. Forced air cooling is provided for the furnace pots, which are 3-ft., 5-in., in diameter, and 7-ft., 1-in., in depth. These furnaces are used for converting pure ammonium diuranate to uranium; this is accomplished in two stages. Some initial corrosion difficulties with furnace linings and pipes have been overcome by using the alloy Inconel.

### BUSINESS NEWS...in the nuclear field...

CONTRACTS AWARDED AT REACTOR TESTING STATION:-A contract for construction of a failure-free power supply system for the materials testing reactor at the national reactor testing station has now been awarded C-L Electric Co., Pocatello, Idaho, who were low bidder (\$26,767) on this job. In another contract award at this station, Arrington Construction Co., Inc., Idaho Falls, Idaho, were low bidder for construction of an addition to a health physics building, and for construction of a radio relay facility on East Twin Butte. Arrington's bid of \$78,335 was the lower of the two submitted for this job; only other bidder was Cisco Construction Co., Portland, Ore., at \$100,500.

NUCLEAR POWER PLANT COURSE ENDS:- Some twenty-one American industrial engineers, who had spent a year at Knolls Atomic Power Laboratory (near Schenectady, N.Y.), studying design and development of nuclear power plants, completed their course last fortnight. The study plan, sponsored by the USAEC and General Electric Co. (which operates KAPL for the USAEC) enabled representatives of industries to learn about problems involved in atomic energy projects. Companies whose representatives completed the course include: American Machine & Foundry, N.Y.; Cincinnati Gas & Electric Co., Cincinnati; Ebasco Services, Inc., N.Y.; Gibbs & Hill, Inc., N.Y.; Gilbert Associates, Inc., Reading, Pa.; Minneapolis-Honeywell Regulator Co., Phila.; B. F. Goodrich Co., Brecksville, Ohio; Kaiser Engineers Inc., Oakland, Calif.; Pennsylvania Power & Light Co., Allentown, Pa.; Smith, Hinchman & Grylls, W. Detroit, Mich.; Union Electric Co. of Missouri, St. Louis; Worthington Pump & Machinery Corp., Harrison, N.J.; Combustion Engineering, Inc., N.Y.; Farrel Birmingham Co., Ansonia, Conn.; Potomac Electric Power Co., Wash., D.C.; J. F. Pritchard & Co., Kansas City, Mo.; N.J. Public Service Electric & Gas Co., Newark, N.J.; Calif. Research & Development Corp., Livermore, Calif.; and United Engineers & Constructors, Phila. Pa.

NUCLEAR POWER WILL ADD TO ENERGY SOURCES, SPEAKER PREDICTS:- A revolution will be brought about in energy sources in the United States through the use of nuclear power, J. J. Hopkins, president, General Dynamics, recently told a conference in New York of the American Management Association. This revolution will come about, Mr. Hopkins explained, because the potential reserves of energy from fissionable materials are now estimated at more than 20 times that available from oil, gas, and coal. He predicted that the United States' power consumption, now increasing at the rate of 5% a year, would provide an especial incentive for development of nuclear power plants.

NEW PRODUCTS, PROCESSES & INSTRUMENTS...for nuclear lab & plant...

FROM THE MANUFACTURERS:- New type of gas flow counter; Model D47. Essentially a Geiger counter, this new instrument is designed for the study of radioisotopes which emit weak beta particles with very low energies and short ranges: radiocarbon, radiozinc, etc. In operation, the radioactive plant tissue or sample is positioned so that only the microscopically thin counter window separates the sample from the inside of the counter. Soft beta particles penetrate the window (120 micrograms/sq. cm.) enabling measurements requiring high sensitivity to be made in a relatively simple manner. Model D47 may be used with most commercially available scalars or count rate meters. Suggested areas of application for the D47 are: analysis by means of isotopic dilution, metabolism studies, and chromatography.---Nuclear Instrument & Chemical Corp., Chicago 10, Ill.

New film badge service provides a personnel monitoring system for those exposed to medical and industrial X-ray equipment, as well as to beta and gamma emitting radioisotopes. This service features a three absorber badge, making possible the accurate analysis of exposures from a broad range of radiations. This range includes X-and gamma rays from 30 kev to 5 mev, and beta rays above 400 kev. The quantitative coverage handles 50 mr to 500 R of high energy radiation, and 20 mr to 100 R of low energy radiation. The user is provided with a special quick change badge for the duration of the service. Only the sensitive film packet inserts are sent for weekly replacement, reducing handling time and return shipping costs for the user.--R. S. Landauer, Jr., & Co., Park Forest, Ill.

New high-speed counting tube Model GC-10D; trade-named "Dekatron". This new cold-cathode counting tube, with a maximum input frequency of 20,000 counts per second, is for use in fast registers and counters. The count is determined by noting the position of the glow on any one of the 10 radially spaced cathodes, around an axially positioned anode. A light shield, and bezel with etched numbers, make possible the notation of the glow position for recording and counting. The high counting speed and silent operation of the tube recommends its use where mechanical devices would be undesirable or where the speed of mechanical devices would be exceeded. The tube operates on 420 volts dc; anode current is 800 microamperes.--Atomic Instrument Co., Cambridge, Mass., distributors in United States and Canada. (Manufactured by Ericsson Telephones, Ltd., Great Britain.)

NOTES: Stable isotopes produced in the United States by contractors of the USAEC are now available for the first time to users outside the United States. While radioisotopes have been sold by the USAEC to foreign users since 1947, stable isotopes generally have been available only to users within the United States. About 175 stable isotopes of nearly 50 elements are produced in facilities of the USAEC. To date, a total of 48 foreign countries has been authorized to receive radioisotopes produced in the United States, and approximately 2,500 foreign shipments of radioisotopes have been made. Under the new program, foreign requests for stable isotopes will be forwarded to the USAEC through the official representatives of foreign nations for radioisotope procurement. The terms and conditions for obtaining stable isotopes will be the same as those which now apply to foreign requests for radioisotopes. The applicant must agree to use the isotope only for the purpose stated in the application, and also must agree to report research results to the USAEC. Foreign countries may obtain isotopes for scientific, medical, and industrial research; medical therapy; and industrial utilization. Stable isotopes will be sold at prices which will recover full costs of production. The quantity of a stable isotope approved for export will be limited to the amount generally provided to a domestic user for a similar purpose.

A 3 million electron-volt Van de Graaf machine has now been donated to the National Institutes of Health by Liggett & Myers Tobacco Co. The machine, which was built in 1950 by High Voltage Engineering Corp., Cambridge, Mass., for an experimental program of the tobacco company, is being installed in the radiation wing of the National Institute of Health Clinical Center, Bethesda, Md. It will be used in research on biological effects of high-energy radiation.

An experimental nuclear power plant, with an output of 5,000 kilowatts, is now in operation in the Soviet Union, according to an announcement last fortnight of the Soviet Council of Ministers. It is believed that this is a pilot plant, similar to those operated by the United States and United Kingdom, for experimental purposes.



RAW MATERIALS...radioactive minerals & ore development & production...

UNITED STATES:-Nev.-An option on the Rundberg uranium property five miles south of Austin has now been taken by the Westvaco Mineral Development division of Food Machinery & Chemical Corp., Pocatello, Idaho. Diamond drilling has been started on the property; the uranium occurs as autunite and torbernite, initial work has shown.....Idaho-A uranium find near Hailey was recently described by Idaho's State Mine Inspector as the "best prospect in the vein we've found in our State". The Inspector, George McDowell, was referring to a discovery made by Primitive Exploration & Finding Co., 12 miles east of Hailey, at the head of Rock Creek. An official of the company stated that tests had shown the ore to contain from 0.15% to 0.35% uranium oxide and also amounts of thorium.....Colo.-A \$1½ million sulphuric acid plant is now to be built by Rico Argentine Mining Co., at its property in Rico, Colorado, according to Rico board chairman J. E. Hogle. Hogle said the plans call for a 200-ton-per-day plant; completion is estimated for the Fall, 1955. The sulphuric acid will go to uranium mills within a radius of some 100 miles of Rico.....Mont.-A loan of some \$26,000 has now been made by the Defense Minerals Exploration Administration to Radon Research Corp., Boulder, Mont. The grant was made for a uranium exploration project of Radon at the Red Rock mine, near Basin, Montana.

CANADA:-Pronto Uranium Mines has now received a "letter of intent" from Canadian-Government-owned Eldorado Mining & Refining, Ltd., official uranium ore purchasing agents, which specifies the price the government is prepared to pay the company for its uranium oxide. The actual contract with terms of the agreement is now being drawn up. Also, in the last fortnight, Lester B. Pearson, Canadian Minister of External Affairs stated at a meeting in Blind River, Ont., that the Canadian Government had arranged for the purchase of uranium oxide from this firm. Mr. Pearson noted that Pronto was the third sizable company to conclude an agreement with the government. (Contracts are now in effect between the government and Gunnar Mines for purchase of uranium oxide, and with Rix-Athabasca Uranium Mines for purchase of uranium ore. There are also royalty contracts in force between the government and Radiore Uranium Mines, and Dominion Explorers, for the mining of ore on these companies' properties.).....A staking rush for uranium prospects has now started in Turner Township, about 30 miles northeast of Capreol, Northern Ontario. To date, over 100 claims have already been staked. The rush was started by Normingo Mines, which staked 19 claims near Bull Lake. Initial grab samples have given assays of 0.125% uranium oxide, according to a company official.

NEW BOOKS & OTHER PUBLICATIONS...in the nuclear field...

Nuclear Notes for Industry; No. 2. A listing of current USAEC unclassified reports of interest to industry.--Oak Ridge National Laboratory, Oak Ridge, Tenn.

Uranium, Radium, and Thorium; by H. D. Keiser. Preprint from the Minerals Yearbook, of the Geological Survey (10¢).....Identification and Occurrence of Uranium and Vanadium Minerals from the Colorado Plateau. Reports of recent investigations by the Geological Survey (25¢).....United States Civil Defense; Clearance and restoration of streets and highways in civil defense emergencies. Publication 13-3 of Federal Civil Defense Administration. (20¢).....Superintendent of Documents, Wash. 25, D. C.

Los Alamos homogeneous reactor, Supo model; by L. D. P. King. Recently declassified report #AECD-3287, prepared in Feb., 1952. --Los Alamos Scientific Laboratory, Los Alamos, N.M. (25¢).

Foreign Atomic Devices and Component Parts; Special Regulation #380-150-30. Issued April 27th, 1954. --Department of the Army, Washington 25, D. C.

Electronic and Radiological Devices for Sterilization. An abstract bibliography prepared by F. D. Horgan and F. H. Cozzi, Office of the Quartermaster General. 32 pages. --Office of Technical Services, Wash. 25, D. C. (\$1.00).

Radiation Hazards in High Altitude Aviation; by C. A. Tobias, Donner Laboratory, Univ. of Calif., Berkeley. (Microfilm; \$2.75. Photostat; \$6.50).....Progress Report No. 31 for the period 1 Sept. 1953--30 Nov. 1953. Work of the Laboratory for Nuclear Science, Massachusetts Institute of Technology. (Microfilm; \$4.00. Photostat; \$11.50.)--Library of Congress, Publication Board Project, Wash. 25, D. C.

Contribution of Atomic Energy to Agriculture; hearings before subcommittee on research and development, 83rd Congress, 2nd Session.--Joint Congressional Committee on Atomic Energy, Washington 25, D. C.

ATOMIC PATENT DIGEST...new grants in the nuclear field...

Shipping container for radioactive materials. Comprising (in part) a base with a well and a cylindrical cutter in this well, the cutter having an upper annular cutting edge. A can having an out turned flange on its upper extremity is telescoped within the cutter and supported through the flange on the cutting edge. A sliding plunger mounted on the top engages with the can to press it against the edge of the cutter to sever the flange. U. S. Pat. No. 2,682,352 issued June 29, 1954; assigned to United States of America (USAEC). (Inventors: Myron B. Hawkins and Edward R. Tompkins.)

A still comprising (in part) two casing sections which are fastened together to form an hermetically sealed enclosure, with means for heating one casing section and for cooling another casing section. Two removable containers are located within this enclosure. The first container, heated by its casing, holds a charge to be vaporized; the second container condenses the charge. U. S. Pat. No. 2,682,451 issued June 29, 1954; assigned to United States of America (USAEC). (Inventors: Robert J. Schmidt and Sam Rosenfeld.)

Extraction apparatus. A multistage continuous liquid-liquid contact apparatus for treating a solution containing a solute with a solvent at least partly immiscible with the solution; the solution and solvent having different densities. The apparatus comprises (in part) a horizontally arranged annular container having spaced baffles dividing the container into a number of interconnected compartments corresponding to the number of stages. Each of these compartments has a pair of vertically spaced upper and lower outlet connections and an intermediate inlet connection. A series of transfer pumps interconnect the compartments and also makes operative mixing devices. U. S. Pat. No. 2,682,452 issued June 29, 1954; assigned to United States of America (USAEC). (Inventor: Lawrence Wainwright.)

Mixer-settler contact apparatus. Comprises (in part) several contact chambers arranged side by side and containing fluids, with series communication for the fluids established between the chambers. Baffle plates within the chambers are interposed in the path of the fluids, assisting the settling processes. Means are also provided for introducing and removing the fluids from the apparatus. U. S. Pat. No. 2,682,453 issued June 29, 1954; assigned to United States of America (USAEC). (Inventors: Clinto H. Holder, Channing C. Nelson, and Robert C. Morbeck.)

Gamma and X-ray dosimetric system, disposed within a sealed inert container. Consists essentially of a two phase liquid composition, one phase being chloroform, and the other phase being an aqueous solution of an indicator dye selected from the group consisting of brom thymol blue, chlorophenol red, and brom cresol purple. The aqueous solution has a pH in the range of about 6.6 to about 7.2 and contains about 0.9 mg. per cc. to about 12 mg. per cc. of dye, the volume ratio of the chloroform to the aqueous phase being in the range of about 5:1 to 15:1. U. S. Pat. No. 2,682,510 issued June 29, 1954; assigned to United States of America (USAEC). (Inventors: George V. Taplin and Clayton H. Douglas.)

Ion source. Comprises (in part) an anode and cathode sealed in a vacuum chamber, the anode adapted to receive a vaporizable material the heavy ions of which are desired, and means for establishing an arc discharge between the anode and the cathode for both vaporizing and ionizing the material. The anode in question is formed of a metal having a melting point higher than the material. Means are provided to feed the vaporizable material to the anode, as well as controlling this. U. S. Pat. No. 2,682,611 issued June 29, 1954; assigned to United States of America (USAEC). (Inventors: William M. Woodward and Lincoln G. Smith.)

Particle and gamma-ray energy spectrometer. Comprises (in part) a counter tube, a voltage supply to energize the tube, and several absorber foils in front of this window, in alignment with the beam of radiations. Means are provided for counting only those pulses produced by ionizing radiations ending their path closely adjacent thereto. U. S. Pat. No. 2,683,221 issued July 6, 1954; assigned to United States of America (USAEC). (Inventor: Ben R. Gossick.)

Sincerely,

The Staff,  
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